ABSTRACT OF THE DISCLOSURE

A connection admission control (CAC) technique for a telecommunications node approximates probability of loss using a log moment generating function and its two partial derivatives of workload on a queue over a time interval. The approximation uses four state variables, which depend on the log moment generating function and its two partial derivatives. The four state variables are: (1) Linear term in approximation to log loss ratio at a working point; (2) the argument of logarithmic term in approximation to log loss ratio at the working point; (3) a buffer limit used at the working point; and (4) a multiplier of imaginary traffic used at the working point. Advantageously, these state variables vary linearly with the traffic, so a new connection can simply add its contributions to them. The connection admission control (CAC) uses the state variables to produce the following three parameters: (1) an approximation $q = z - \log(c)$ to the logarithm of the probability of loss; (2) a buffer size limit B; and (3) a multiple m of imaginary traffic from a design mix. The traffic on all connections is admissable if four conditions are satisfied. The present invention applies, e.g., to a single queue and server, and can be generalized to multiple queues and servers.